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Kashmir AVI

[For additional information on the growth of plantation agriculture
see category 311, 6; Spate AWI India.]

Woodcarving is practiced at many places, and that turned out at Sufihara is especially noted. The work is artistic, but suffers from the fact that the Kashmiri is a bad carpenter. Lacquered wood-work is produced at Kulgam. Woollen cloth (pattu) is woven all over the State, the best work being produced in the north, while the finished product of the south is especially famous. Blankets are made in many places, and sometimes fetch Rs. 25 a piece. The blacksmiths are very skilful, and some have been able to make surgical instruments and repair gun-locks. The city of Srinagar is noted for its silver, copper, wood-carving, and lacquer. The shawl and paper industries are almost extinct, but many of the shawl-workers have become expert weavers of carpets or have taken to embroidering felts. Good embroidery is also turned out at Islamahad. An industry started very recently, in connexion with the development of sericulture, is the weaving of silk cloth. In 1906 about 100 looms of improved pattern were imported and set up.

Commerce and trade: Up to quite recent times Kashmir was almost a self-supporting country, and the chief imports--piece-goods, metals, salt, sugar, tea, and tobacco--were of modest dimensions. Before the opening of the cart-road from Rawalpindi to Baramulla in 1890, the trade was carried by Kashmiris who went down every winter to work in the Punjab, and brought back domestic requisites, or by the professional muleteers, or by Punjabi bullock-drivers. There were three trade routes. The most direct crossed the Banihal pass and ran to Jammu, the railway terminus; the most popular route followed the old imperial road over the Pir Panjal, reaching the railway at Gujrat; and the third was known as the Jhelum valley road, which is now the cart-road and the main line of communication with the Punjab.

In 1892-3 the total imports from India were valued at 48.7 lakhs. In 1902-3 the imports reached 118 lakhs, but the trade of that and later years was greatly impaired by the prevalence of plague in the Punjab. In 1904-5 the total value was 115 lakhs. The table on the next page shows the value of the more important imports in the years chosen for comparison.

There can be little doubt that Kashmir has increased enormously in prosperity of late years. The land revenue settlement has turned the agricultural classes from serfs into well-to-do peasants, and their wealth is reflected in their increased purchases. The increase in the import of salt is especially satisfactory, as in 1892 it was shown that the annual average of consumption in Kashmir was exactly half of that prevailing in the Punjab.

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000 ed so far and we leave it for the imagination of reader to fill up the picture when the entire territories have been surveyed.

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Although a good deal of survey work has been done but actual working has not so far been seriously commenced save in the case of Corundum Sapphires of which about 30,000 Tolas have been dug out from the Padar Mines and the Aquamarines which have been won from the Skardu Mines. Prospecting licenses for Ochre, Gypsum, Talc and Lignite have been issued to private individuals or firms and applications for grant of prospecting licenses for some other minerals are under consideration. This no doubt shows that some beginning in the exploitation of Mineral Wealth has been made though on a small scale and day by day increasing number of people are getting interested in the business bringing within reach of the Government fresh sources of income. The working of the principal minerals on a commercial scale on which the State can build its hopes especially Bauxite, Iron, Copper, Lignite and Coal is ruled out problem unless communication to the mines situated over high mountains are improved to facilitate their carriage in raw condition to commercial centres to compete in the market or to facilitate the carriage of heavy machinery and engineering plants to the mines for converting the raw material into finished commercial products.

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For the conversion of these inert resources into actual wealth which will flow into and fill up the coffers of the State in ever-increasing bulk bringing all-round prosperity in the country it is necessary to impart requisite training to the people in industrial development.

None of the minerals have so far been developed and worked on scientific basis for lack of proper communications, public enthusiasm or for other reasons. To derive full advantage of these resources, it is hoped, the State would formulate vigorous industrial policy, grant adequate protection, concessions and other guarantees so that big capitalists might feel encouraged to invest their wealth in large scale ventures. Even for small undertakings working wherein can be immediately taken in hand the following facilities should whenever necessary, be extended to the lessees so that the traditional shyness of the local residents might be won over and sufficient nerve, confidence and spirit of adventure be developed in our youngmen who may feel an instinct for industrial careers in preference to clerical jobs. Some of the more important requisites for industrial development as stated by the Industrial Department are :—

1. Transport facilities,
2. State aid,
3. Protective tariffs during the stage of infancy,
4. Petronization of indigenous manufactures,
5. An efficient and wide-spread Banking System,
6. Organisation of Markets,
7. Scientific researches, and above all
8. The quality of Human Factor.

The present low standard of output and of comfort, the contempt for manual labour, the low vitality, the absence of ambition, the inordinate tendency to borrow for unproductive expenditure are individually or collectively responsible for keeping a large proportion of the State population low in the scale of civilisation and progress. A weak and ignorant population, however, richly endowed with natural resources cannot be made to appreciate the economic possibilities around them and to seize the opportunity for bettering themselves.

PRECIOUS AND SEMI-PRECIOUS STONES

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But with the spread of education both academic and technical the progress in trades and crafts, the general awakening and the propagation of information regarding the discoveries of fresh mineral and other resources and the ways of utilizing them the conditions have and are progressively improving and with the State lead the people will not be found lacking in the necessary enthusiasm to take up to the industrial modes of life.

Although the conversion of the big mineral resources such as Coal, Iron, Bauxite, Copper etc., into liquid wealth which will bring in an era of prosperity and material welfare in His Highness' territories is a question of time and money, yet the following minerals can be taken up for working immediately either through private capitalisms or through the department itself and thus prove a source of augmenting the income of the State in some measure and at the same time opening out new careers for youngsters in these days of trade slump and unemployment :-

1. Sapphires of Paddar (Kishtwar tehal).
2. Aquamarines of Dasm (Skardu tehal).
3. Gypsum, Ochres, Lignite and Steatite.
4. Raw materials whose working will lead to the establishment of profitable Glass and Pottery industry, Cement industry and other chemical industries.

It is needless to mention that prosperity of many advanced countries of the World—Canada, France, Great Britain, Germany etc., has been due to the scientific exploitation of their mineral wealth (especially Coal and Iron occurring in close association with each other) and there is no reason why by working on similar lines the Jammu and Kashmir State which is so rich in mineral wealth and has got both Coal and Iron occurring side by side in the Riasi tehal where large Hydro-electric power can also be developed from the Chenab river, should not one day assume the role of a big Industrial country redounding to the mutual prosperity of both the Ruler and the ruled. May the Almighty accelerate the advent of that millennium.

25. Forests—Area.—During this decade the area under the control of the Forest Department increased from 9393 square miles to 10141 square miles. This was due partly to more areas having been demarcated, but more largely to taking over the forests belonging to the Bhadarwah and Langet Jagir at the time of the annexation by the State of His Highness' Private Domains.

Organization.—The main event during this decade was the re-organization of the department in June 1924, when the department was placed under a Chief Conservator with four Conservators for Jammu, Kashmir, Working Plans and Utilization. The number of Forest Divisions was also increased from 14 to 24.

Financial.—The expansion of the department's activities is best shown by the financial results. The following compares the results for 1927 and 1928-29 (in lakhs of rupees):—

	1927.	1928-29.
Revenue	4180	7102
Expenditure	1686	2322
Surplus	2491	4780

During this decade the net income derived by the State from its forest was nearly doubled.

241 seasonal immigration of hillmen. Wheat, barley, and rape are grown as rabi, maize and bajra as kharif. Higher up, in wider, better-watered valleys, bajra gives way completely to maize. Irrigation is difficult here also, as streams are incised, but it is not so necessary as in the lower valleys.

135 The unexploited mineral resources of the region are important. In Riase Dt the Nummulitica contain three or four small fields with seams of anthracite (carbon 60-82%) up to 20 ft thick; farther W the coal is very friable and the thin seams too disturbed to be workable. The pisolitic limonites and ironstone of the same area and formation were exploited by indigenous methods in the past, and in view of the general mineral poverty of Pakistan might have some importance should she secure title to the area. The basal Eocene beds are fossil laterites, an old land-surface on the Permo-Carboniferous, and contain patches of pure bauxite forming a large reserve of aluminium ore.*

161 The region is fairly well peopled: densities range from 327 in Jammu and 563²³⁸ in Mirpur to 144-174 in Riase and Kathua, which contain definitely mountainous areas. All these showed decreases 1931-41, by as much as 15% in Jammu. The SE is strongly Hindu, 60-70% and locally over 80%, and should partition take place Jammu, Kathua, and Udhampur would be indisputably *Indian*: this is the home of the Dogras, the dominant minority in the state. Jammu (50,379) was the original base of the ruling house, whence the official title of the state is 'Jammu and Kashmir'; it is still the winter capital and the terminus of the only railway, a short line from Sialkot. To the W Punc is over 90% Muslim, a feudatory generally on bad terms with its Kashmiri overlord.

433 The whole region is of less significance in itself than in relation to W Punjab. The SE might well be detached, but the rest normally plays a very [13] important part in the economy of W Pakistan. Its forests are the main [31] supply for a country desperately short of timber, while Riase might at least mitigate the mineral deficiency. In addition the importance to the W Punjab of the Mangla headworks and of the hydro-electric potential can hardly be over-estimated.

133 Finally we may note the essentially similar, though rather higher, country across the Jhelum, which forms much of Rawalpindi and Hazara 274 (NWFP). Murree, a hill station at the usual 6500-7500 ft, was chiefly noted for brewing; the high barley acreage of the region may have been significant.

The Pir Panjal

133 The Pir Panjal is in a sense a bifurcation from the main Himalaya farther E. Structurally and lithologically it is most complex; thrusting is important

* D. N. Wadia, *Geology of India* (1939), 339, 348, 431-2.

* The *Indian* counter-argument that the main customer was the railway system, three-quarters of which went to India on Partition, is transparent enough.

Other Occupations

Supplementary to agriculture proper are sericulture and pastoralism. 231
By 1900 the former activity was decrepit as well as ancient, but the introduction of modern filatures has led to a wide extension of mulberry culture, though not enough cocoons are produced to keep the filatures at Srinagar and Jammu and the weaving factory at Srinagar working to capacity. There is also, of course, a good deal of hand-loom weaving of silk, cotton, and wool; silk is a major export.

The main pastoral activity is sheep-rearing; this is transhumant, the sheep live in winter beneath the human dwellings—adding to their warmth—and in summer are taken by professional shepherds to the high pastures above the tree-line; this is the *marq* common in place-names and strictly equivalent to the Swiss *alp*. Winter feed is willow and dried flag 236
(Iris) leaves. After agriculture, wool production is probably the chief means of livelihood in Kashmir, employing full- or part-time some 300,000 people. The famous Cashmere shawl industry died a languishing death in the 1870s, but there is naturally a large cottage production of woollen clothing, blankets, and rugs; felting is important also, and Srinagar has a large woollens factory. Mineral exploitation is insignificant, though a start has 316
been made on the commercial exploitation of lignite from some of the 549
karewas, which has been used locally by the villagers for years. A minor industry of interest is the manufacture of cricket bats and so on from the willows. But perhaps the most lucrative of all trades—in normal times—is 484
the exploitation of tourists.

Srinagar

For this, of course, the capital Srinagar (207,787) is the centre: "quaint" 369
in itself, with its carved wooden architecture, immediately surrounded by the beautiful Mogul gardens and magnificent lake and river scenery, central for hunting and mountaineering, it is—on the surface—one of the most attractive cities in all Asia. But it has always been liable to fire and to flood, at times to earthquake; its site obviously leaves much to be desired from a sanitary point of view.¹⁷ Nor, if report be true, are its citizens any more virtuous, in any direction, than they need be.

The factories of Srinagar are largely due to state enterprise, and make 433
it the only industrial centre of the slightest note in Kashmir. But craft 655
industries are more important. Neglecting the obvious tourist lines—silver and copper work, wood-carving, papier-mâché and lacquer—the leading crafts are probably carpet-weaving and leather work: leather gear of various sorts is essential to transport in the mountains, and the products

¹⁷ In the 1892 cholera epidemic 600 people died in one day "and the only shops which remained open were those of the sellers of white cloth for winding sheets." The total mortality was 5781 of a population around 120,000 (*Gazetteer*, 119).

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INDIA AND PAKISTAN

433 have a high standard of durability. The supply of hides and skins was large, as the Hindu orthodoxy of the ruling house prohibited cow-slaughter and so inflated the numbers of cattle. The production of high-grade rag paper was once important, but has declined before the growth of the Indian mill industry. Finally we may note the importance of water-borne traffic: much of the provisioning of the city is done by flat-bottomed boats, 50-60 ft long and drawing 2 ft or so, which can carry up to 30 tons of cargo. The boatmen, particularly those who man the tourist house-boats, have a reputation for supplementing licit earnings by following the world's second oldest trade.

505 Much of the importance of the Vale, and hence of Srinagar, lies in its function as a staging-base on the Himalayan routes. The Sn entries have already been mentioned; to the NW the road to Gilgit and the Oxus lies across the Raj Diangan Pass (11,800 ft) into the Kishen Ganga Valley and then by the Burzil (13,755) into Astor; both these passes not without danger in winter. But the most important trade route, leading either up the Indus into Tibet or across the Karakoram into Sinkiang, is that to the NE by the Zoji La. At 11,578 ft this is the lowest col on the main W Himalayan axis, a pass of the Maloja type with the steep ascent on the S: this is due to the Sind cutting back into the headwaters of the Dras, which lies on the drier side of the mountains and has much farther to go before it reaches 5200 ft, the local base-level of the Sind.

161 If anywhere on earth presents the semblance of the Happy Valley of 439 *Rasselas*, it is the Vale of Kashmir; but however pleasant the prospects, the 661 human history of the region has been, on the whole, vile. To begin with, it is probably over-populated; density in Anantnag (Srinagar) Dt is 303 (and of course far higher in relation to cultivated area), and it is significant that sugar and grain come next to cotton goods in the Kashmiri import list. Beyond this it is hardly an exaggeration to say that the whole history of Kashmir for the last few centuries has been one of misgovernment and oppression, often deliberate, of the peasantry for the benefit of narrow Court cliques; nor was this tradition dead in this century. At this point it is probably appropriate to discuss the present Indo-Pakistani conflict.

THE KASHMIR DISPUTE

631 'The trouble in Kashmir' stems finally from the simple fact that a popu- 668 lation 77% Muslim was ruled by a family of the strictest Hindu orthodoxy, descendants of a particularly able and ruthless *condottiere* under the Sikhs, Gulab Singh of Jammu, who 'mediated' between British and Sikhs to his own profit. It is safe to say that at no time in the century's existence of the state have relations between the dominant Dogra Rajputs of Jammu and the Muslim majority been other than those of exploiters - exploited, to such an extent that until quite recently agricultural progress was still

THE HIMALAYAS: KASHMIR AND KARAKORAM

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inhibited by the peasant's simple reflection that, if any profit resulted, the tax-gatherer would seize it.

With the removal of British rule the throne of Kashmir became more than shaky; it is ironic to reflect that, while Congress had frequently proclaimed that only British bayonets kept the Princes on their thrones, *Indian* bayonets were not backward to support the least reputable of the major ruling houses.¹⁸ Legally the ruler's right of adherence to *India* is unquestionable, and this is the basis of the *Indian* claim. Pakistan, of course, points to *Indian* inconsistency in apparently refusing the same right of option—or even of abstaining from option—to the Nizam of Hyderabad. It is not difficult, however, to put forward a reasonable justification of *India's* action in Hyderabad, and moreover Pakistanis are not really entitled to make this point, since shortly before the Kashmir crisis exploded they were seemingly prepared to accept the adherence of the Muslim ruler of Hindu Junagadh, which is not even contiguous with Pakistan.¹⁹ The Pakistani case was still further weakened by complicity in the invasion of NWFP tribesmen; but the alternative might well have been an incursion into the Punjab, and they could only have been restrained by force of Muslim against Muslim: in the summer of 1947 this would have been beyond human nature. The respective proportion of looting and liberation in this tribal incursion cannot be evaluated, and the situation was worse confounded by the virtual war-within-a-war of the Punchis in support of their own ruler against the Dogras of Jammu. It seems that at first many 'Azad Kashmir' troops were genuine volunteers from the Pakistan army, returning on leave (rather freely granted) to their homes in Punch. Later, however, Pakistani intervention was avowed, and this has given *India* her strongest diplomatic weapon. On the *Indian* side much has been made of the democratic nature of Shaik Abdullah's 'People's Government' and its programme of reforms such as the expropriation of (mainly Hindu) landlords. It is impossible to reach any firm judgement. At present there is an uneasy truce along a cease-fire line which leaves *India* holding Jammu and part of Punch, all the Vale, and most of Ladakh W of the Burzil Pass. The charges of oppression from both sides of this line are too probably true, and again it is impossible to assess fairly the work of the rival governments; either territory is in the full swing of rehabilitation and social reform, or stagnant and starving, according to the source of information so liberally supplied by either party.

Leaving these legal and moral issues aside, as appearing to the candid outsider pretty fairly balanced, it would seem that if economic geography should count for anything, then *Pakistan's* case is stronger than

¹⁸ It must be admitted, however, that His Highness has been relegated to an obscurity more decent than his previous fame. It is sad to reflect that this tragedy is in the last resort the result of the decision of one man placed in his position by the historic accident of a century ago.

¹⁹ And the Junagadh question is still not entirely dropped.

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433 668 *India's*. The importance of Kashmir water to W Punjab, for both irrigation and power, has been stressed already; Kashmiri timber was also very important to W Punjab, and conversely had its main outlet there, since exploitation depended largely on rafting down the rivers which all flowed into W Punjab. The Sialkot sports goods industry used Kashmir willow and resin. The import of salt for the Kashmir tanneries is also more costly from *India* than from the Salt Range mines, and Pakistan would obviously find it easier to supply the food deficit than would *India*. Oil is essential for transport into the Vale, and Pakistanis claim that the natural supply would be from Attock or SW Asia through Karachi.

491 The natural links of Kashmir are mainly with W Punjab. All roads are difficult to maintain, but the Jhelum route is really the only all-weather one. It is only 185 miles from Srinagar to Rawalpindi, 250 to Amritsar, and the *Indian* route is badly snow-bound (or at least impeded) for three months on the Banihal Pass, while its sub-Himalayan stretch lies athwart the drainage of an area notoriously liable to gullyng and landslips. Fruit and timber were the largest exports from Kashmir, and while Pakistan has far more potential resources in temperate fruits than has *India*, the timber situation is the reverse.

631 668 Six years after the original outbreak no solution of this not so cold war was remotely in sight. At this stage Shaik Abdullah showed signs of playing his own hand and was obviously reluctant to enter the *Indian* union on the same terms as the other states; indeed he secured substantial constitutional concessions. His supersession further inflamed Pakistani feeling, fearful of a *fait accompli*; but at the same time the crisis held a clear warning that *India* also could overplay her hand *vis-à-vis* the Kashmiris. Hence the dramatic suddenness with which, in August, 1953, both countries agreed at last on a time limit—twelve months—for the ever-receding plebiscite.

But the organisation of it will raise difficulties. Is it to be a simple yes or no, *India* or Pakistan? If the Kashmiris are to decide, it might be that they should have the option of opting for neither, risky as that might be. *India* and Pakistan are likely to be at one in vetoing this, if in nothing else. Then again neither side, for internal political reasons, could well accept complete cession as a result of a possibly narrow adverse majority. However unsatisfactory, and however difficult it is to decide on the basic units, partition seems the only way out.

Indus Kohistan and Gilgit

Nanga Parbat and the Gorges

133 Nanga Parbat, the mighty NW pillar of the Great Himalaya, is almost separated from the main mass by the valleys of the Kishan Ganga and the

The Great Himalaya and the Zaskar Range

The Great Himalaya may be taken as commencing in the Indus bend; 133
across that river, in Swat, the strike is swung round by the syntaxis and is practically at right angles to the NW/SE trend of the main range. From the Zoji La to the Indus the really high ground (over 15,000 ft) is broken into a number of distinct massifs, of which Nanga Parbat is by far the most conspicuous; E of the Zoji La the passes are nowhere below 15,000 ft until the great break of the Sutlej/Spiti Valley—a distance of 250 miles, in which there are several peaks over 21,000 ft. To the S are the En continuation of the Pir Panjal (here 15,000–18,000 ft), beyond the Chandra-upper Chenab Valley, and S again the Dhaoladhar (10,000–15,000) with the upper Ravi between it and the Pir Panjal; the Beas itself as a whole cuts across the trend, with longitudinal stretches. Between the Great Himalaya and the Indus the same lines are well shown in the Zaskar Range²² and its reticulate drainage pattern, e.g. the Sn Shigar, the headstreams of the Zaskar River, and the valleys of inland drainage in Rupshu.

"As a tectonic unit, the Great Himalaya is made up of the roots of the Kashmir nappe, the principal geanticline within the main Himalayan geosyncline, consisting of the Archaean and pre-Cambrian sedimentary rocks together with large bodies of intrusive granites and basic masses."²³ The granitic intrusions are post-Cretaceous, perhaps associated with the actual orogeny, and the thrusts of this area are not comparable with the great nappes of the central and En Himalaya, so far as is yet known.

The area N of the main axis is more interesting. The higher Zaskar peaks are seated upon a broad plateau-like range, much dissected, at about 19,500 ft. More definite erosion surfaces are found in Rupshu, round the enclosed basin of Tao Morari, at 16,600 ft, and in the NW the Deosai Plains lie at about 13,000. It is probable that these areas of rolling mature or late-mature terrain are merely the clearest expression of platforms of much greater extent—in Deosai the country intermediate between the deeper valleys and the 15,000 ft plus massifs from Nanga Parbat to the Zoji, and possibly connected with the Pir Panjal surface S of the Vale.²⁴

The human geography is naturally almost nil. In the wide open valleys of 433
Rupshu—the lowest are around 13,500 ft—some barley is grown, and here, above Tao Morari, is Korzok, at 15,000 ft claimed as the highest agricultural settlement in the world.²⁵ A little borax is produced from the saline lakes.

²² Range nomenclature as on SOI 1:1M sheets 43 (Srinagar), 52 (Leh), 53 (Delhi); but Zaskar is often spelt Zaskar, Dhaoladhar Dhauladhar (both the latter in SOI.)

²³ D. N. Wadia, *op. cit.* (1939), 312.

²⁴ de Terra, "Physiographic Results of a Recent Survey in Little Tibet", *GR XXIV* (1934), 12–41; *refces* at 21, 34. From now on citations from de Terra refer to this paper.

²⁵ According to S. D. Pant (*The Social Economy of the Himalayas* (1935), 9, 41) the highest settlement of any description is the pastoral striding of Lwan, N of the Kurnan Himalaya at 19,000 ft.

- 433 Zaskar also has its patches of cultivation, and is noted for its hardy ponies. The Deosai Plains "are mournful stretches of grass and stones, with many a bog difficult to cross, and uninhabited but for the marmots, an occasional bear, and swarms of big black gnats. The absence of wood for fuel, the distance from human habitations, and local superstitions regarding 'the devil's place' prevent the people from using the pastures." Such population as there is in the Himalaya/Zaskar region is largely nomadic, and the shepherds of Rupshu "complain bitterly of the heat of Leh"—average annual temperature 40°-9° F.¹²
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Ladakh and Baltistan: The Indus Furrow

The Indus and the Ladakh Range: 'Little Tibet'

- 133 The Indus rises on the Nn flanks of the Kailas Range, and flows in a great Nly curve until it breaks through that range to the Gartang confluence; this tributary continues the line of the main river through Kashmir, occupying a narrow corridor between the Kailas and En Ladakh Ranges. Below the confluence the Indus holds on a generally straight SE-NW course until the Gilgit joins it at Bunji and it turns to round Nanga Parbat. S of Lake Pangong, however, it makes a sharp bend and cuts through the Ladakh Range,¹³ which it pierces again above the Shyok confluence. This great furrow is on the whole fairly graded; from the Gartang confluence to Bunji (c. 450 miles) the fall is only from c. 13,800 to 4600 ft, or about 20 ft per mile. Alluvial flats are found in the extreme E of its Kashmir course, at about 13,800 ft. In the E—Ladakh proper—the whole catchment as well as the immediate valley is narrow, constricted between the closed basins of Pangong and Morari; but in Baltistan the catchment widens somewhat. At Skardu, where the Nn Shigar comes in a few miles below the Shyok, the Indus is often over 500 ft wide and 9-10 ft deep even in winter.

The Ladakh Range between the two Indus gaps forms a remarkably straight wall for some 190 miles: Indus and Shyok flow parallel 25-30 miles apart, and between them the range rises 10,000 ft or more to a rather even crest at 19,000 ft. Again the flanks, gentler on the N, carry evidences of a pre-glacial mature relief: "at 17,450 ft a rolling surface with valleys one to two miles in width separated by low divides . . . head-waters moving sluggishly around sand bars until they break through the terminal moraine walls and fall at a rate of 1600 ft per mile through boulder-choked gorges." The relations between the abrupt steps—often of 1000 ft—in the valley-floors and the moraines indicate that these are old erosion levels, independent of ice action, but affected by inter-glacial uplift. The pre-glacial Indus

¹² *Kashmir Gaz.*, 3, 103.

¹³ de Terra, however, thinks that the Range bends sharply from NW/SE to W/E just here (18-19, 22, 40, and Fig. 6), and his arguments seem valid. But for convenience the accepted nomenclature of the SOI maps is retained.

133 The Indus furrow is in general broken, rocky, barren, and dry. But every snow-fed tributary builds its fan, and where there is enough water the stream is split into radiating channels: "the living greens of apricots, willow trees, and little fields of barley make the surrounding desert appear uniformly parched and brown." E of Leh the Indus flows for 20 miles along a fault which brings it against the softer Eocene rocks; here there is a little alluvial plain and the fans "end abruptly against swampy fields, so that a man can stand with one foot in a desert and the other on damp green grass". This is perhaps the best-peopled part of the region, which has an average density of 4. The plain is dominated by Hemis Gompa, the most important Buddhist monastery of Little Tibet.

241 Beardless *grim* barley is the dominant crop, and can be grown to nearly 15,000 ft; at lower altitudes two crops a year may be possible, as the plant matures very quickly. Wheat, buckwheat, pulses, roots, and lucerne are grown in sandy carefully-manured soils; new soil is brought to the fields from hill-side pockets, or sprinkled on the snow to melt it when it lies late. Ploughing and transport are mostly by the *dzo*, the offspring of the cow and the yak bull. The grain is ground by water-mills of rough but ingenious construction.²²

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771 The people are in part nomadic—the Champa herders of sheep and yaks—but the Ladakhis proper are for the most part settled agriculturalists. Although they are often in debt to the monasteries, these are apparently very amenable creditors, and the peasantry is on the whole much more prosperous than the Muslim Baltis down-river; there seems little doubt that this is mainly due to the check on population provided by polyandry and monasticism. The whole atmosphere is Mahayana Buddhist, and the most prominent features of the cultural landscape, after the irrigated fans, are the monasteries, the innumerable *chorten* shrines, prayer wheels, fluttering streamers to affright the demons, and the long piles of *mani* stones on the approaches to villages: "heaps of rubble, shaped like sheds, with a width of twenty feet, a height of five or six, and a length of from fifty to a thousand . . . covered with hundreds of flat stones on each one of which the lamas had inscribed the universal prayer" *om mani padme hum*.²³ Hard as life is, swayed by the most fantastic demonolatry, the people have their full share of the usual Buddhist—or Mongol—cheerful good-fellowship, and are not without amenities: festivals in the winter and, in the short slack season as the barley grows, a living and intricate religious art of painting and dance.

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433 In normal times the transit trade was an important source of income: through Skardu lies the trail to the Muztagh Pass and Kashgar; at Leh, a

²² Details and illustration in Hutchinson, *op. cit.*, 91-94.

²³ E. Huntington, *The Pulse of Asia* (1907), 58-60; cf. G. Dainelli, *Buddhists and Glaciers of Western Tibet* (1933), 41-90, an admirably vivid description.

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pleasant little caravanserai town, converge the roads from the Zoji La and the high Himachal Pradesh passes, the Indus road into Tibet itself and eventually to Lhasa, and the route via the Saser and Karakoram Passes (17,480 and 18,290 ft) into Sinkiang. Leh owes its importance mainly to the unusual size of its fan—5 miles wide and 1000 ft thick; purely Tibetan in aspect, it is dominated by the palace of the old Ladakhi kings, a miniature of the Potala at Lhasa.²⁸ But the Sinkiang trade has been declining for years with the increasing pull of Soviet Asia, and the war in Kashmir has disrupted the external contacts of this remote and fascinating little world.²⁷

The Karakoram

Here, rather than on the Pamirs, is the Roof of the World, a mass of rock and ice extending for 250 miles from the Shyok to the Hunza, with the greatest assemblage in the world of giant peaks—33 over 24,000 ft—culminating in the tremendous keeps of the three Gasherbrum summits, all over 26,000, and finally K₂ itself (Fig. 67). K₂ (Mt Godwin Austen) is an almost regular cone of ice and limestone on a granite/gneiss base; at 28,250 ft it is exceeded only by Everest, but the latter has no such spectacular company of high peaks around it, and "above all it does not display such an immensity of silence and desolation".²⁹ The very passes are rarely lower than the summit of Mt Blanc (15,782 ft) and several are over 18,000; though some of those shown on the map are probably topographical cols rather than passes in a real sense, the W Muztagh, at 19,030 ft, is certainly the highest trade route in the world. The name Karakoram means 'black gravel' and has been extended from the relatively subdued terrain—at 18,000–20,000 ft!—around the Karakoram Pass in the E.³⁰ Geomorphologically the region is intensely interesting; its human geography is obviously almost non-existent, but what there is may fairly be called heroic.

As we have seen (Ch. I, 16, 25–26), the Karakoram is probably much older than the Himalaya, as shown for example by the absence of Tertiary sediments between Ladakh and the Nn flank of the Kunlun. Its actual relations with the other ranges of the great orogeny remain obscure; to the NW the Karakoram Ranges abut onto the Pamir/Hindu Kush in a country of very confused topography, while their continuation to the SE is still debateable, but probably via the Pangong Range into the Kailas. The divergence of Himalayan and Karakoram trends is most clearly seen N of the Shyok, but de Terra, who regards the Ladakh Range as the first member of the Karakoram system, draws attention to the swing from NW/SE to W/E

²⁷ See plate at p. 74 of Dainelli, *op. cit.*

²⁸ This is dealt with in M. Geary, "Western Tibet" (London Ph.D. thesis, 1948)—a full and admirable study which I have regretfully refrained from using for reasons of space.

²⁹ F. Grenard, *Haute Asie* (*Géographie Universelle*, Paris (1939) T.VIII), 343.

³⁰ Heights and range-names in this section from the beautiful map of the Karakoram (1/750,000) published by the Royal Geographical Society.